IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

CARNEGIE MELLON UNIVERSITY, Plaintiff, v. MARVELL TECHNOLOGY GROUP, LTD., and MARVELL SEMICONDUCTOR, INC., Defendants.	)	Civil No. 09-290 Judge Nora Barry Fischer

MEMORANDUM OPINION

There are several motions pending before the Court in this patent litigation wherein Plaintiff, Carnegie Mellon University ("CMU") alleges infringement of U.S. Patent Nos. 6,201,839 (the "'839 Patent") and 6,438,180 (the "'180 Patent") (collectively, "the CMU Patents"). The instant motion was filed by Defendants Marvell Technology Group, Ltd. and Marvell Semiconductor, Inc. (collectively, "Marvell") for summary judgment of non-infringement of the so-called "Group II"[1] claims of the patents at issue ("the Motion"). (Docket No. 352). For the reasons discussed below, the Motion (Docket No. 352) is GRANTED.

I. BACKGROUND

The factual background of this case has been described in past opinions (*see*, *e.g.*, Docket Nos. 306, 337), so the Court does not reiterate a detailed description of the relevant patents. Likewise, reference can also be made to the Court's extraterritoriality and licensed use opinion (Docket No. 441) for a complete description of Marvell's sales cycle.

[1] The Parties have divided the asserted claims into two independent groups. The Group I claims are not at issue in this motion. The Group II claims include claims 11, 16, 19 and 23 of the '839 Patent and claim 6 of the '180 Patent.

The two patents are generally directed to sequence detection in high density magnetic recording devices, and more specifically, to high density magnetic recording sequence detectors. *See* '839 Patent 1:20-23. Both patents claim priority to a May 9, 1997 provisional application. *See* '839 Patent; '180 Patent. The '180 Patent is a continuation-in-part of the '839 Patent. *See* '180 Patent.

There are two categories of technology raised in Marvell's motion. The first is Marvell's commercial chips ("Accused Chips"), which are the chips produced during and after Marvell's sales cycle. (Docket No. 353 at 2). The second category is Marvell's simulation programs ("Simulation Programs"), which are used for research and development purposes. (*Id.*). Between the two categories, there are eight accused products at issue here: three chips (MNP, EMNP and NLD chips) and five Simulators (the "Kavcic Viterbi," the "KavcicPP," the "MNP" (Media Noise Processor) simulator, the "EMNP" (Enhanced Media Noise Processor), and the "NLD" (Non-Linear Viterbi Detector) simulators).

Claim 11 of the '839 Patent is exemplary of the Group II claims. It claims:

> A method for detecting a sequence that exploits the correlation between adjacent signal samples for adaptively detecting a sequence of symbols stored on a high density magnetic recording device, comprising the steps of:
> (a) Performing a Virterbi [sic] like sequence detection on a plurality of signal samples using a plurality of correlation sensitive branch metrics;
> (b) Outputting a delayed decision on the recorded symbol;
> (c) Outputting a delayed signal sample;
> (d) Adaptively updating a plurality of noise covariance matrices in response to said delayed signal samples and said delayed decisions;
> (e) Recalculating said plurality of correlation sensitive branch metrics from said noise covariance matrices using subsequent signal samples; and
> (f) Repeating steps (a) –(e) for every new signal sample.

'839 Patent at col. 15, lns. 2-17. The dispute revolves around claim steps (a), (e) and (f).

II. LEGAL STANDARD

"The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." FED.R.CIV.P. 56(a). Pursuant to Rule 56, a district court must enter summary judgment against a party "who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial." *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). "Only disputes over facts that might affect the outcome of the suit under the governing law will properly preclude the entry of summary judgment." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).

Summary judgment may be granted when no "reasonable jury could return a verdict for the nonmoving party." *Id.* Therefore, in performing its analysis, a court should "view the evidence in a light most favorable to the opposing party and resolve doubts in its favor." *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1315 (Fed. Cir. 1998).

When a non-moving party would have the burden of proof at trial, as is the case here, the moving party has no burden to negate the opponent's claim. *Celotex*, 477 U.S. at 323. Thus, the moving party does not need to produce *any* evidence showing the absence of a genuine issue of material fact. *Id.* at 325. "Instead, … the burden on the moving party may be discharged by 'showing'—that is, pointing out to the district court—that there is an absence of evidence to support the nonmoving party's case." *Id.* After the moving party has satisfied this low burden, the adverse party must provide facts showing that there is a genuine issue for trial in order to counter the motion for summary judgment. *Id.* at 324.

A patent infringement analysis requires that the court properly construe the claims terms and then apply that construction to the accused product. *TechSearch, L.L.C. v. Intel Corp.*, 286

F.3d 1360, 1369 (Fed. Cir. 2002). Summary judgment of non-infringement may be granted when the Court determines that "no reasonable jury could have found infringement on the undisputed facts or when all reasonable factual inferences are drawn in favor of the patentee." *Id.* at 1371 (citations omitted).

Direct infringement of a U.S. patent occurs when a party, "without authority makes, uses, offers to sell, or sells any patented invention, *within the United States*." 35 U.S.C. § 271(a) (emphasis added). Method claims are not infringed simply by the sale of an apparatus that is capable of infringing use. *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311 (Fed. Cir. 2006); *Standard Havens Products, Inc. v. Gencor Industries, Inc.*, 953 F.2d 1360, 1374 (Fed. Cir. 1991). "Because a process is nothing more than the sequence of actions of which it is comprised, the use of a process necessarily involves doing or performing each of the steps recited." *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir. 2005). Thus, direct infringement of a method claim only occurs if each step of the claimed method is actually performed. *See Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1328 (Fed. Cir. 2008); *see also Ricoh Co., Ltd. v. Quanta Computer Inc.*, 550 F.3d 1325, 1333 (Fed. Cir. 2008) (citing *BMC Resources, Inc. v. Paymentech, L.P.*, 498 F.3d 1373, 1378-79 (Fed. Cir. 2007)).

Although expert testimony is not necessary to prove infringement, "in a case involving complex technology, where the accused infringer offers expert testimony negating infringement, the patentee cannot satisfy its burden of proof by relying only on testimony from those who are admittedly not expert in the field." *Centricut, LLC v. Esab Group, Inc.*, 390 F.3d 1361, 1370 (Fed. Cir. 2004). The *Centricut* case "stands as an apt example of what may befall a patent law plaintiff who presents complex subject matter without inputs from experts qualified on the relevant points in issue when the accused infringer has negated infringement with its own

expert." *Id.* Under the Federal Rules, expert testimony must be preceded by a report that contains "a complete statement of all opinions the witness will express and the basis and reasons for them." Fed. R. Civ. P. 26(a)(2)(B)(i); *see ClearValue, Inc. v. Pearl River Polymers, Inc.*, 560 F.3d 1291, 1302 (Fed. Cir. 2009).

III. ANALYSIS

Before engaging in a complete analysis of the pending motion, the Court observes that Marvell raised several arguments in its motion, a number of which are effectively conceded by CMU. Hence, the Court will briefly summarize those concessions before analyzing the remaining issues.

Initially, Marvell argues that the Accused Chips do not infringe the Group II claims. (Docket No. 353 at 4). It also argues that the allegedly infringing code is inoperable in its chips. (*Id.* at 5). Then, Marvell argues that CMU has failed to offer sufficient evidence of infringement of claims 16, 19 and 23 of the '839 Patent. (*Id.* at 7). CMU responds that

> In view of the Court's construction of 'noise covariance matrices,' CMU's technical expert, Dr. Steven W. McLaughlin, did not opine that Marvell's ***chips*** infringe the Group II claims, nor did he offer opinions that any of Marvell's simulators infringe claims 16, 19 and 23 of the '839 patent or claim 6 of U.S. Patent No. 6,438,180.

(Docket No. 391 at 1). CMU goes further, admitting that Dr. McLaughlin's opinions of infringement with respect to the Group II claims only address three of Marvell's simulators and only raise infringement of claim 11 of the '839 Patent. (*Id.*).[2] Thus, CMU concludes that "the only real issue raised by Marvell's motion is a narrow one—whether the three Accused Group II ***Simulators***… infringe claim 11 of the '839 patent." (Docket No. 391 at 1-2).

[2] Given CMU's concessions, the Court will grant summary judgment of non-infringement of the Group II claims with respect to all of Marvell's chips, and it will grant summary judgment of non-infringement of claims 16, 19 and 23 of the '839 Patent and claim 6 of the '180 patent with respect to all of Marvell's simulators.

With all of the chips, most of the claims, and some of the simulators removed from dispute through CMU's own admissions, the Court is left only with the question of whether the three remaining simulators – the Kavcic Viterbi simulator, the MNP simulator, and the EMNP simulator – infringe claim 11 of the '839 Patent. The Court now turns to that question.

Marvell raises both substantive and procedural issues challenging CMU's infringement contentions with respect to the Group II claims. Substantively, Marvell asserts that CMU has failed to identify in its report certain elements of the Court's claim construction, and that CMU has therefore failed to show that the simulators practice steps (a), (e) and (f) of claim 11. (*See* Docket No. 353 at 9-10). Procedurally, Marvell asserts that CMU is precluded from asserting infringement of the Group II claims against any of Marvell's simulation code because CMU did not include this theory at any point in this litigation prior to service of its expert report. (*Id.* at 10-12). Because the Court finds that Marvell is entitled to summary judgment on its substantive arguments, the Court need not address the procedural argument, but for completeness sake, the Court will comment on the same.

a. Non-infringement

In order to show infringement of the method claims at issue, CMU must demonstrate that Marvell practices *every* step of the claimed method. *See Muniauction*, 532 F.3d at 1328 (It "is axiomatic that a method claim is directly infringed only if each step of the claimed method is performed."). In a case that involves complex technology such as this, when the accused infringer has provided expert testimony negating infringement, the patent owner must respond with its own expert. *See Centricut*, 390 F.3d at 1370.

Although Marvell also takes issue with claim steps (a) and (e), the parties' reply and sur-reply briefs (Docket Nos. 411 and 426, respectively) concentrate heavily on claim step (f), and it

is to that element which the Court turns its attention. Claim step (f) requires "[r]epeating steps (a) – (e) for every new signal sample." '839 Patent at col. 15, ln. 17. Marvell's expert has explained in reasonable and concise terms why, in his opinion, the Marvell simulator programs do not practice claim step (f). (*See* Docket No. 352-4 at ¶¶ 262-266). It is, therefore, incumbent upon CMU to demonstrate through its expert that claim step (f) is practiced by Marvell's simulations. *See Centricut*, 390 F.3d at 1370. Accordingly, the Court turns to CMU's expert report, submitted by Dr. Steven W. McLaughlin. (Docket No. 352-8). Upon review, the Court finds that the report does not establish that Marvell's simulators practice this step. Because *all* steps are necessary to show infringement, this finding makes it unnecessary to examine the evidence pertaining to claim steps (a) and (e).

Rather than applying the claim language in his report, Dr. McLaughlin states that the process described in claim steps (a) through (e) is "repeated for various sectors" or "repeated for each sector" of the high density magnetic recording device. (Docket No. 394-2 at 52). As Marvell demonstrated at the hearing, a sector is comprised of 4,096 bits. (*See* Docket No. 434-2 at 15 (Marvell's slides, showing what a sector is and citing Dr. McLaughlin's deposition)). Given that each bit is a new signal sample, Dr. McLaughlin's report does not demonstrate that claim step (f) occurs for every new signal sample. Rather, it states that the process is repeated for "each" or "various" sectors. (Docket No. 394-2 at 52). Such conclusory statements are insufficient to demonstrate that Marvell's simulators practice claim step (f). *See Intellectual Science & Technology, Inc. v. Sony Electronics, Inc.*, 589 F.3d 1179, 1185 (Fed. Cir. 2009) (Rader, J.) (Finding, with respect to expert report, that a "conclusory statement is insufficient.").

CMU attempts to cure this defect by arguing that other parts of Dr. McLaughlin's report demonstrate the repetition described in claim step (f).[3] However, to the Court's reading, the other portions of his report that could be read as disclosing repetition are step-specific. For example, Dr. McLaughlin stated at his deposition that his discussion of claim steps (d) and (e) disclosed signal-by-signal adaptation. (*See* Docket No. 394-4 at 221-224). The problem with his reference to claim steps (d) and (e) is that nothing in his discussion of those two steps, in either his report or his deposition, refers to the claim steps (a) through (c) in a way that would indicate repetition.

That these two steps are the only places where Dr. McLaughlin points to signal-by-signal repetition just highlights the fact that repetition is not disclosed anywhere else in his step-by-step analysis. CMU does a fine job of pointing to multiple locations in Dr. McLaughlin's report where he refers to multiple states or signal samples (*see* Docket No. 426 at 3-4), but only claim steps (d) and (e) bear any indication that repetition for every signal sample as required by the claim. Dr. McLaughlin's discussion of claim step (d), for example, states that "***[f]or each sample 'ix'*** within the sector the simulation code iterates through a pattern of symbols read from the hard disk drive… ***For each sample 'ix' and symbol 'jx'*** the code section 'adapt_matrixInversion' computes a covariance matrix." (Docket No. 426 at 4 (citing Docket No. 394-2 at 50-51)) (emphasis in brief). Dr. McLaughlin likewise opines that in step (e), "[t]he process described in step [11D] above ***is repeated for each subsequent signal sample 'ix'*** as read as the code section 'adapt_matrixInversion' loops through the sector over the number of

[3] In its brief in opposition, CMU inserts a blanket cite to the entirety of Dr. McLaughlin's analysis in support of the proposition that the report adequately addresses claim step (f). (*See* Docket No. 391 at 16 (citing Ex. 1 at Appx. L 37-52)). CMU's sur-reply refers to specific segments of Dr. McLaughlin's report that allegedly describe the necessary sample-by-sample repetition. (*See* Docket No. 426 at 3-4).

samples…" (Docket No. 426 at 4 (citing Docket No. 394-2 at 51)). These statements are strictly limited to claim steps (d) and (e).

Nothing in the cited portions of Dr. McLaughlin's opinion shows, for example, that "outputting a delayed signal sample" (claim step (b)) occurs on a signal-by-signal repetitive basis. Dr. McLaughlin's discussion of claim step (c) in the KavcicViterbi simulator states only that "[t]he Kavcic Viterbi simulation code iterates over a current state and outputs delayed signal samples 'y=samples[time-1].'" (Docket No. 394-2 at 49). This says nothing of repetition for each signal sample, and when combined with Dr. McLaughlin's clear and concise statement at claim step (f) (Docket No. 394-2 at 52), must be viewed as being repeated only "for various sectors."

CMU also argues that the Court should consider Marvell's own admissions as evidence that the simulations infringe claim 11. (*See* Docket Nos. 391 at 10-12; 426 at 2-3). While there are numerous admissions from Marvell's witnesses that refer to the CMU Patents, those admissions do not establish *infringement*.

CMU, in its sur-reply brief, relies on *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1351 (Fed. Cir. 2007), for the proposition that "a reasonable jury could find infringement on these admissions alone." (Docket No. 426 at 1). Although *PharmaStem* acknowledges that "there is no prohibition against using the admissions of a party… as evidence in an infringement action," *PharmaStem*, 491 F.3d at 1351, it does not hold that such an admission establishes infringement *per se*. The flaw with CMU's position is that admissions by Marvell that it "[c]op[ied] Dr. Kavcic's papers that describe the method of claim 11," and that the simulators "contain the implementation … of the IP which is taught in Professor Kavcic's papers, and ***consequently in his patent***," (*see* Docket No. 426 at 2 (emphasis in brief)), do not

establish that a specific claim element, much less an entire claim, has been copied. Indeed, the '839 Patent includes 28 claims, yet CMU has only alleged infringement of nine claims (five in Group I and four – now one – in Group II). The clear reason is that each claim protects different technological territory, and some claims may be infringed while others are not. This idea is expressed clearly in the doctrine of claim differentiation, for example. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314-15 (Fed. Cir. 2005) ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim."). Marvell's admission that it copied the teachings of the '839 Patent does not establish infringement by Marvell's simulation programs of a *specific claim*, especially when Marvell has submitted expert evidence that contradicts such a finding (*see* Docket No. 352-4 at ¶¶ 262-266) and CMU's expert was unable to show that the programs practiced all of the claim steps.

b. Preclusion from Asserting New Theory

Although the Court does not rule upon this argument at this juncture, as it is not necessary in light of the findings above, the Court wishes to make some observations with respect to Marvell's assertion that CMU is precluded from asserting infringement of the Group II claims by the Simulation Programs. Marvell essentially argues that CMU produced its newest infringement theory too late, because such a theory was not introduced until January 17, 2012 – the date that CMU served Dr. McLaughlin's report. (Docket No. 353 at 10-12).

CMU responds that Marvell has not been prejudiced in any manner. (Docket No. 391 at 18). In addition, CMU claims that Marvell would have no reason to pursue additional discovery, as Marvell already had access to all the relevant code files and authors of that code. (*Id.*). CMU

also claims that Rule 37(c) should control whether the alleged failure to update warrants striking. (Docket No. 426 at 4-5).

Pursuant to this Court's Local Patent Rules,

> Amendments or modifications of the Infringement Contentions or the Non-infringement and/or Invalidity Contentions are permissible, subject to other applicable rules of procedure and disclosure requirements, if made in a timely fashion and asserted in good faith and without purpose of delay. The Court's ruling on claim construction may support a timely amendment or modification of the Infringement Contentions or the Non-infringement and/or Invalidity Contentions.

L.P.R. 3.7. Our local patent rules are "designed to advance the litigation in a timely and efficient manner and make it less expensive." *Copper Innovations Group, LLC v. Nintendo Co., Ltd.*, Civ. No. 07-1752, 2012 WL 628465, *2 (W.D.Pa. Feb. 27, 2012). Amendment under Local Patent Rule 3.7 is committed to the Court's discretion. *Id.*

CMU's late filing of a new theory via its expert report was done without leave of the Court. While CMU is correct that "Marvell cannot point to any local patent rule that required CMU to update its contentions at any specific time prior to service of Dr. McLaughlin's report" (*id.* at 5), the Rules "aim to prevent the vexatious shuffling of positions that could occur if the parties are permitted to freely modify their infringement contentions at any point in the action." *Nintendo*, 2012 WL 628465 at *2 (internal quotations omitted). The Court agrees with Marvell that CMU violated Local Patent Rule 3.7. Waiting until the absolute last possible moment to file new infringement contentions is directly contradictory to the purpose of the Rules.

That is not to say that Marvell is blameless in this dispute. Marvell did delay production of the simulation code files until more than six months after CMU's preliminary contentions were due. (*See* Docket No. 426 at 5 (citing Docket No. 427-1, Ex. 36)). Still, CMU had an opportunity to amend its preliminary infringement contentions to address the simulation code, and indeed, CMU did so on December 1, 2010. (Docket No. 352-6). It did not offer any theory

whereby the Simulation Programs infringed the Group II claims until submission of its expert report over thirteen months later, in January of 2012. (*See* Docket No. 353 at 10).

To the extent that CMU's new infringement contentions were first disclosed via Dr. McLaughlin's report, the Court notes that Rule 25(a)(2)(B) provides that, among those issues to be addressed in a written report is "a complete statement of all opinions the witness will express and the basis and reasons for them." FED.R.CIV.P. 26(a)(2)(B)(ii).[4] Failure to abide by the disclosure requirements in these provisions is governed by Rule 37(c)(1), which provides that "[i]f a party fails to provide information … as required by Rule 26(a) or (e), the party is not allowed to use that information … to supply evidence on a motion, at a hearing, or at a trial, unless the failure was substantially justified or harmless." FED.R.CIV.P. 37(c)(1). However, prior to excluding evidence, the United States Court of Appeals for the Third Circuit has held that a district court must consider:

(1) the prejudice or surprise of the party against whom the excluded evidence would have been admitted;

(2) the ability of the party to cure that prejudice;

(3) the extent to which allowing the evidence would disrupt the orderly and efficient trial of the case or other cases in the court; and

(4) bad faith or willfulness in failing to comply with a court order or discovery obligation.

Nicholas v. Pennsylvania State University, 227 F.3d 133, 148 (3d Cir. 2000). In addition, "'the importance of the excluded testimony' should be considered." *Konstantinopoulos v. Westvaco*

[4] A party is also required to supplement expert disclosures made under Rule 26(a)(2) pursuant to Rule 26(e)(2). FED.R.CIV.P. 26(e).

Corp., 112 F.3d 710, 719 (3d Cir. 1997) (quoting *Meyers v. Pennypack Woods Home Ownership Ass'n*, 559 F.2d 894, 904 (3d Cir. 1977)).

After considering these factors, the Court finds that, while it is possible that prejudice could inure to Marvell through CMU's eleventh-hour presentation of a new theory of infringement and associated evidence, there has been no evidence placed before this Court by Marvell that demonstrates same. For example, Marvell has not shown any additional attorneys' fees or costs it absorbed given CMU's late filing. Nor has it shown an inability to prepare an adequate response. To the contrary, Marvell's expert had sufficient time to consider and respond to CMU's new theory. Likewise, Marvell has not filed a motion to reopen discovery or requested a continuation of trial. Even if the Court was to assume that prejudice had inured, the potential prejudice has been cured by the Court's decision to grant summary judgment of non-infringement of the Group II claims. Thus, while there may otherwise have been a basis for excluding the portions of Dr. McLaughlin's report relating to CMU's new theory of infringement, there is no need to do so on procedural grounds at this stage.

IV. CONCLUSION

Based on the preceding, the Court grants Marvell's motion for partial summary judgment of non-infringement with respect to Claims 11, 16, 19 and 23 of U.S. Patent No. 6,201,839 and Claim 6 of U.S. Patent No. 6,438,180. An appropriate Order follows.

s/ Nora Barry Fischer
Nora Barry Fischer
United States District Judge

Date: August 24, 2012
cc/ecf: All counsel of record.